REMARKS:

Reconsideration of the present application is respectfully requested for the reasons that follow.

Summary of Substance of Interview

This is a summary of the telephone interview of June 22, 2010 between Examiner Amber Steele and Applicant's representative. This summary is being filed with reply to the last Office Action and thus is timely filed.

Applicants' representative and the Examiner discussed the claim construction and possible claim amendments to overcome the patentability rejections. Applicants' representative and the Examiner also discussed how much patentable weight should be given to various claim limitations.

Claim Amendments

New claim 31 has been added. There is written description support for this amendment in the specification as filed at least at p. 4, ll. 17-28. No new matter is added by means of this amendment.

Rejections under 35 USC § 102(b)

The Examiner has rejected claims 1, 3-7 and 9 under 35 USC § 102(b) as being anticipated by Crameri (*Gene*, vol. 137, 1993, pp. 69-75). Crameri is directed to a cloning and expression system allowing the display of cDNAs on the surface of a

filamentous phage which utilizes the interaction between leucine zipper proteins. The Examiner argues that Crameri teaches a first fusion protein PIII comprising a Jun-Leucine-Zipper domain and a pelB signal sequence, as well as a second fusion protein derived from a cDNA from a cDNA library, comprising a Fos-Leucine-Zipper domain and a pelB signal sequence. The Examiner argues that a mixture of these two fusion proteins anticipates the subject matter of independent claim 1. In arriving at this conclusion, the Examiner reads the "folding state" elements out of claim 1, arguing that these limitations cannot be given patentable weight as there are no specific structures providing different folding requirements in the claims. Applicants traverse.

The claim limitations of a) iii) and b) iii) of the first and second fusion protein, respectively, of claim 1 are both defined structurally. Specifically, claim 1 requires a stretch of amino acids (i.e., both a) and b) relate to fusion proteins), whose structure provide a specific function (i.e., the ability of guiding a protein in a translocation pathway, which leads to a translocation in an unfolded (feature a) iii)) or folded (feature b) iii)) state. pelB, as disclosed in Carmeri, is a translocation sequence, which leads to translocation via a Sec-dependent pathway and, thus, leads to translocation in an unfolded state. Hence, the first fusion protein in Crameri leads to translocation in an unfolded state. However, the second fusion protein in Crameri also comprises a pelB sequence and, thus, a translocation sequence which does not provide for translocation in a folded state. Accordingly, the second fusion protein does not comprise a translocation domain having the structural and functional features of feature b) iii). One preferred example of such a sequence is the Tat-dependent translocation sequence. Therefore, even assuming arguendo that Crameri discloses the first fusion protein of

present claim 1, it does not disclose the second fusion protein of present claim 1. As such, the anticipation rejection of claim 1, and its dependent claims, is improper and should be withdrawn. Additionally, this anticipation rejection does not apply to new claim 31 for the same reasons as discussed above.

Rejections under 35 USC § 103(a)

The Examiner has rejected claims 1 and 3-9 under 35 USC § 103(a) as being obvious over Crameri (*Gene*, vol. 137, 1993, pp. 69-75) in view of Weiner (US Pat. No. 6,335,178) and further in view of Wu (*Arch. Microbiol.*, vol. 173, 2000, pp. 319-324). Crameri is discussed above. Weiner is directed to compositions and methods for secretion of functional proteins in a soluble form in host cells. Wu is directed to the membrane targeting and translocation of periplasmic and membrane-bound bacterial hydrogenases. The Examiner has also rejected claims 1 and 3-9 under 35 USC § 103(a) as being obvious over Crameri (*Gene*, vol. 137, 1993, pp. 69-75) in view of Georgiou (US Pat. No. 7,419,783). Crameri is discussed above. Georgiou is directed to leader peptides which direct export of heterologous proteins from the bacterial cytoplasm.

The Examiner argues that Crameri is the closest prior art to the subject matter Jun-Leucine-Zipper domain and a Fos-Leucine-Zipper domain, respectively, and a pelB signal sequence, which leads to the transport in an unfolded state into the periplasm. Further, the Examiner argues that Weiner in view of Wu, or Georgiou teach such a translocation sequence by disclosing a Tat-dependent translocation sequence which allegedly motivates the skilled person to modify the protein mixture of Crameri by

introducing a Tat-dependent signal sequence in one of the fusion proteins. Hence, the subject matter of claim 1 is considered obvious. Applicants traverse.

The deficiencies of Crameri are discussed above. None of Weiner, Wu or Georgiou compensate for these deficiencies. Furthermore, one of skill in the art would not combine Crameri with Weiner and Wu, or Crameri with Goergiou. To arrive at the subject matter of present independent claim 1, one of skill in the art would have to recognize the possibility of at least modifying a protein mixture like the one of Crameri in a way that one of the fusion proteins is folded in the cytoplasm and is subsequently transported into the periplasm, where it can bind to another fusion protein which has been folded in the periplasm. That is, one of skill in the art would have to consider how to produce protein complexes containing fusion proteins of which some are folded in the periplasm and others in the cytoplasm. However, Crameri neither teaches nor suggests that its proteins can be modified in such a manner. To the contrary, Crameri states on page 74, right column, 2nd paragraph: "the potential for the expression of dimers is mainly limited by the imagination of the investigator", which suggests to the skilled person that the system of Crameri allows for the production of any desired fusion protein. This then teaches one of skill in the art away from using any other method of producing fusion proteins. In addition, none of Weiner, Wu or Georgiou teach or suggest modifying the Crameri proteins in such a manner. Hence, there is no motivation whatsoever for the skilled person to modify the protein mixture taught in Crameri at all, let alone to modify it by introducing features taught in Weiner, Wu, or Georgiou.

Furthermore, a skilled person would not have expected that two proteins, one of which has been folded in the cytoplasm, the other one transported unfolded into the

periplasm could have been capable of interacting in the periplasm to form fusion protein dimers capable of presenting. Hence, there was no reasonable expectation of success and no motivation to try the claimed approach, which is why the subject matter of present claim 1 is not obvious over Crameri in view of Weiner and Wu, or in view of Georgiou. Therefore, this obviousness rejection is improper and should be withdrawn. Additionally, this obviousness rejection does not apply to new claim 31 for the same reasons as discussed above.

In view of the foregoing, it is submitted that the present application is now in condition for allowance. Reconsideration and allowance of the pending claims are requested. The Director is authorized to charge any fees or credit any overpayment to Deposit Account No. 02-2135.

Respectfully submitted,

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